GP-303502

VEHICLE STABILITY ENHANCEMENT CONTROL AND METHOD

ABSTRACT OF THE DISCLOSURE

A side-slip velocity estimation module for a vehicle stability enhancement control system includes a side-slip acceleration estimation module that determines an estimated side-slip acceleration of a vehicle. A limited-frequency integrator
5   integrates the estimated side-slip acceleration to determine an estimated side-slip velocity of the vehicle. The limited-frequency integrator includes a feedback loop which incorporates a cutoff frequency for the integrator. The cutoff frequency is determined using a Fast Fourier Transform (FFT) of the signal associated with the estimated side-slip acceleration. The cutoff frequency is preferably selected to be the
10   minimum frequency content associated with the FFT. A reset logic module clears an output of the limited-frequency integrator when a first condition occurs. The first condition is one of a straight-driving condition, a speed condition, and a sensor bias condition. The estimated side-slip velocity is compared to a desired side-slip velocity to produce a side-slip control signal. The side-slip control signal is combined with a
15   yaw rate control signal to produce an actuator control signal. The actuator control signal is received by one of at least one brake actuator and a rear-wheel steering actuator to create a yaw moment to correct a dynamic behavior of the vehicle.